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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,423	02/10/2004	Shinji Nagashima	248686US2KK	9984
22850 7590 05/15/2008 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER TADESSE, YEWEBDAR T	
			ART UNIT	PAPER NUMBER
			1792	
			NOTIFICATION DATE	DELIVERY MODE
			05/15/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/774,423	Applicant(s) NAGASHIMA ET AL.	
	Examiner YEWEBDAR T. TADESSE	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02/21/08.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 19-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-15 and 18 is/are rejected.
- 7) ☒ Claim(s) 9, 16 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>02/10/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of group I in the reply filed on 02/21/2008 is acknowledged.
2. Claims 19-22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 02/21/2008.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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5. Claims 1-7, 10-13 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagashima et al (2003/02000918 A1) in view of Hyun et al (US 4,983,546) and/or Jeoung et al (US 6,398,430).

As to claims 1-2, 6-7 and 11, Nagashima et al discloses a hardening processing apparatus comprising a first processing chamber (41) with a heating plate (43) heating the substrate to a predetermined temperature one by one, a second processing chamber (42) connected to the first processing chamber with a temperature adjusting plate (53) adjusting the substrate temperature one-by-one and a control section (items 64, 65 and 66) capable of performing the processing steps as claimed in the first chamber. Nagashima et al lacks teaching an irradiating unit provided in the first processing chamber for irradiating the substrate mounted on the heating plate wherein the substrate is heated while being irradiated. However, Hyun et al discloses a curing system with a hot plate and UV lamps of having a wavelength of 300 nm (see column 5, lines 25-32) and teaches a curing method utilizing only thermal energy (hot plate, in similar fashion as shown by Nagashima) is disadvantageous over the method using ultraviolet energy simultaneously with a thermal energy in preventing the occurrence of cracks in the film. An irradiating unit for irradiating the substrate while heating on hot plate is also known; for instance, as evidenced by Jeoung et al (see Fig 7 for a UV unit (60) and a wafer (68) mounted on a hot plate (70)). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include an irradiating unit for irradiating the substrate mounted on the heating plate to prevent cracks in the

film or improve the insulating property of the film as taught by Hyun (see column 4, line 60- column 5, line 2).

With respect to claim 3, in Nagashima et al the temperature adjusting plate is movable between a position above the heating plate in the first processing chamber and the second processing chamber.

As to claim 4, Nagashima et al discloses a raising and lowering member (lift pins 47) the temperature adjusting plate (53) entering a gap (see Fig 7) between the substrate and the substrate transferred from the heating plate to the temperature adjusting plate.

Regarding claim 5, Nagashima et al discloses a shutter (45) and a passing port (52) between the first processing chamber and the second processing chamber.

As to claim 10, Nagashima et al discloses an inert gas supply unit (N2 gas supply) and an exhaust unit (exhaust unit 73).

As to claims 12-13, in Nagashima et al the coating film is capable of being insulating film and the heating process is low oxygen heating (see paragraph 27).

As to claim 18, Nagashima et al discloses a hardening processing apparatus comprising a first processing chamber (41) with a heating plate (43) heating the substrate to a predetermined temperature one by one, a second processing chamber (42) connected to the first processing chamber with a temperature adjusting plate (53) adjusting the substrate temperature one-by-one, a coating unit (see paragraph 9 and Fig 2 for SCT), a carrier unit (transfer unit 25, see paragraph 45 and Fig 3) and a control section (items 64, 65 and 66) capable of performing the processing steps as claimed in

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the first chamber. Nagashima et al lacks teaching an irradiating unit provided in the first processing chamber for irradiating the substrate mounted on the heating plate wherein the substrate is heated while being irradiated. However, Hyun et al discloses a curing system with a hot plate and UV lamps of having a wavelength of 300 nm (see column 5, lines 25-32) and teaches a curing method utilizing only thermal energy (hot plate, in similar fashion as shown by Nagashima) is disadvantageous over the method using ultraviolet energy simultaneously with a thermal energy in preventing the occurrence of cracks in the film. An irradiating unit for irradiating the substrate while heating on hot plate is also known; for instance, as evidenced by Jeoung et al (see Fig 7 for a UV unit (60) and a wafer (68) mounted on a hot plate (70)). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include an irradiating unit for irradiating the substrate mounted on the heating plate to prevent cracks in the film or improve the insulating property of the film as taught by Hyun (see column 4, line 60- column 5, line 2).

6. Claims 1-8, 10-13, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagashima et al (2003/02000918 A1) in view of Hyun et al (US 4,983,546) and/or Kusuda (2002/0195437).

As to claims 1-2, 6-8, 11, 14-15, Nagashima et al discloses a hardening processing apparatus comprising a first processing chamber (41) with a heating plate (43) heating the substrate to a predetermined temperature one by one, a second processing chamber (42) connected to the first processing chamber with a temperature

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adjusting plate (53) adjusting the substrate temperature one-by-one and a control section (items 64, 65 and 66) capable of performing the processing steps as claimed in the first chamber. Nagashima et al lacks teaching an irradiating unit provided in the first processing chamber for irradiating the substrate mounted on the heating plate wherein the substrate is heated while being irradiated. However, Hyun et al discloses a curing system with a hot plate and UV lamps of having a wavelength of 300 nm (see column 5, lines 25-32) and teaches a curing method utilizing only thermal energy (hot plate, in similar fashion as shown by Nagashima) is disadvantageous over the method using ultraviolet energy simultaneously with a thermal energy in preventing the occurrence of cracks in the film. Irradiating units for irradiating the substrate while heating on hot plate is also known; for instance, as evidenced by Kusuda (see Fig 7 for first and second UV units (21) capable irradiating UV light having different wavelengths and a wafer mounted on a movable hot plate (74)). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include an irradiating unit for irradiating the substrate mounted on the heating plate to prevent cracks in the film or improve the insulating property of the film as taught by Hyun (see column 4, line 60-column 5, line 2).

With respect to claim 3, in Nagashima et al the temperature adjusting plate is movable between a position above the heating plate in the first processing chamber and the second processing chamber.

As to claim 4, Nagashima et al discloses a raising and lowering member (lift pins 47) the temperature adjusting plate (53) entering a gap (see Fig 7) between the

substrate and the substrate transferred from the heating plate to the temperature adjusting plate.

Regarding claim 5, Nagashima et al discloses a shutter (45) and a passing port (52) between the first processing chamber and the second processing chamber.

As to claim 10, Nagashima et al discloses an inert gas supply unit (N₂ gas supply) and an exhaust unit (exhaust unit 73).

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As to claim 18, Nagashima et al discloses a hardening processing apparatus comprising a first processing chamber (41) with a heating plate (43) heating the substrate to a predetermined temperature one by one, a second processing chamber (42) connected to the first processing chamber with a temperature adjusting plate (53) adjusting the substrate temperature one-by-one, a coating unit (see paragraph 9 and Fig 2 for SCT), a carrier unit (transfer unit 25, see paragraph 45 and Fig 3) and a control section (items 64, 65 and 66) capable of performing the processing steps as claimed in the first chamber. Nagashima et al lacks teaching an irradiating unit provided in the first processing chamber for irradiating the substrate mounted on the heating plate wherein the substrate is heated while being irradiated. However, Hyun et al discloses a curing system with a hot plate and UV lamps of having a wavelength of 300 nm (see column 5, lines 25-32) and teaches a curing method utilizing only thermal energy (hot plate, in similar fashion as shown by Nagashima) is disadvantageous over the method using ultraviolet energy simultaneously with a thermal energy in preventing the occurrence of

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cracks in the film. Irradiating units for irradiating the substrate while heating on hot plate is also known; for instance, as evidenced by Kusuda (see Fig 7 for first and second UV units (21) capable irradiating UV light having different wavelengths and a wafer mounted on a movable hot plate (74)). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include an irradiating unit for irradiating the substrate mounted on the heating plate to prevent cracks in the film or improve the insulating property of the film as taught by Hyun (see column 4, line 60-column 5, line 2).

Allowable Subject Matter

7. Claims 9 and 16-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: prior art of record fails to teach each and every limitation of the instant invention. Specifically, fails to teach or reasonably suggest the claimed second irradiation unit in the second processing chamber (per claim 9), a controller for raising the heating plate based on the signal from the sensor sensing the deterioration of the first irradiation unit (per claim 16) or a first irradiation unit movable between the first chamber and the second chamber (re claim 17) comprising, inter alia, a hardening processing apparatus having a first processing chamber provided with a heating plate

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and a first irradiating unit, a second chamber in communication with the first chamber as claimed (see claims 1 and 8).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YEWEBDAR T. TADESSE whose telephone number is (571)272-1238. The examiner can normally be reached on Monday-Friday 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Yewebdar T Tadesse/
Primary Examiner, Art Unit 1792